

REMARKS

The applicants have carefully considered the official action mailed on April 10, 2007, and the reference cited therein. In the official action, the specification was objected to for section heading formatting, absence of a section entitled “BRIEF SUMMARY OF THE INVENTION,” and minor typographical errors. The applicants provide herewith a replacement specification to address the typographical errors. No new matter has been added in the replacement specification. Additionally, claims 1-30 were rejected under 35 U.S.C. §101 as directed to non-statutory subject matter, and claims 1-30 were also rejected under 35 U.S.C. §102(b) as anticipated by “Efficient Global Object Space Support for Distributed JVM on Cluster” by Fang et al. (hereinafter “Fang et al.”). Claims 1-30 remain pending in this application, of which claims 1, 11, and 21 are independent. Favorable reconsideration is respectfully requested in view of the following remarks.

The applicants provide herewith a substitute specification to identify various terms (e.g., Java) that may be associated with a trademark and/or a tradename. Such terms are identified in capital letters, and no new matter has been added.

The applicants submit that the objections to the specification related to 37 C.F.R. §1.77(b) do not require rearrangement of section headings of the specification. Additionally, the applicants submit that 37 C.F.R. §1.77(b) does not require addition of a section entitled “BRIEF SUMMARY OF THE INVENTION.” To illustrate, the applicants refer to language identified and emphasized by the examiner from 37 C.F.R. §1.77(b), which states, in part, the specification of a utility application should include the following sections in order (emphasis added). Unlike a requirement, as identified by terms such as must and/or shall, 37 C.F.R. §1.77(b) provides applicants

with a discretionary choice as to whether particular elements of an application are included. In fact, MPEP §608.01(a) (Eighth Edtn., Revision 3, page 600-72) acknowledges that an example order of arrangement of specification elements “is preferable” in framing the nonprovisional specification, but does not impose such suggested arrangement as a requirement.

The MPEP also provides support for the applicants’ use of the heading TECHNICAL FIELD rather than the heading FIELD OF THE INVENTION. In particular, MPEP §608.01 (page 600-73) specifically identifies the title TECHNICAL FIELD as being appropriate.

Regarding the alleged requirement for a section entitled BRIEF SUMMARY OF THE INVENTION, 37 C.F.R. §1.73 recites, *inter alia*, such summary should, when set forth, be commensurate with the invention as claimed. Again, the applicants respectfully submit that such language clearly identifies applicant discretion (i.e., “when set forth”) regarding use or non-use of any section entitled BRIEF SUMMARY OF THE INVENTION. Additionally, the applicants maintain that 37 C.F.R. is consistent when using terms to communicate suggestions/recommendations versus mandatory requirements. For example, 37 C.F.R. §1.71(a) employs the term “must” to communicate that the specification must include a written description of the invention. Similarly, 37 C.F.R. §1.72(b) insists that, unlike the optional BRIEF SUMMARY OF THE INVENTION heading, a brief abstract of the technical disclosure in the specification must commence on a separate sheet. Any attempt to differentiate between the terms “should” and “must,” both of which are recited in 37 C.F.R., logically indicates that such terms refer to optional and mandatory concepts, respectively. Accordingly, the applicants respectfully request that any objections to the specification be withdrawn that are related to either a heading entitled BRIEF

SUMMARY OF THE INVENTION, or any alteration of the present heading entitled
TECHNICAL FIELD instead of FIELD OF THE INVENTION.

Claims 1-30 are directed to statutory subject matter in compliance with 35 U.S.C. §101. A claim directed to a practical application constitutes statutory subject matter if it involves a physical transformation or if it produces a useful, tangible, and concrete result, but in neither case preempts an abstract idea, a law of nature, or a natural phenomenon. *Diamond v. Diehr*, 450 U.S. 175, 183-184, 187, and 192 (U.S. 1981); *State St. Bank & Trust Co. v. Signature Fin. Group*, 149 F.3d 1368, 1373 (Fed. Cir. 1998).

In particular, the elements recited in claim 1 produce a useful, concrete, and tangible result. A claimed invention that produces a number shall not necessarily be deemed as not producing a useful, concrete, and tangible result. *State St. Bank & Trust Co.*, 149 F.3d at 1373. On the contrary, a mathematical algorithm reduced to a practical application constitutes a useful, concrete, and tangible result. *Id.*; *see also AT&T Corp. v. Excel Communs., Inc.* 172 F.3d 1356 (Fed. Cir. 1999) (“the judicially-defined proscription against patenting of a ‘mathematical algorithm,’ to the extent such a proscription still exists, is narrowly limited to mathematical algorithms in the abstract.”).

In *State St. Bank & Trust Co.*, the claimed invention recited a mathematical algorithm used to transform data corresponding to dollar amounts to a final share price. *Id.* at 1373. The final share price was a useful, concrete, and tangible result because it was generated for subsequent use and was relied upon for further processes. *Id.* (explaining that “the final share price [was] momentarily fixed for recording and reporting purposes and even accepted and relied upon by regulatory authorities and in subsequent trades”); *See also In re Alappat*, 33 F.3d 1526, 1544 (Fed. Cir. 1994)

(holding that pixel illumination intensity data derived using a mathematical algorithm for displaying via a display was not an abstract idea but, instead, constituted a useful, concrete, and tangible result) and *AT&T Corp.*, 172 F.3d at 1359 (a PIC indicator derived using a mathematical formula constituted a useful, concrete, and tangible result because it had a particular meaning indicative of a call recipient's PIC).

Independent claim 1 of the subject application involves, *inter alia*, identifying a second node in a data structure allocated by a runtime environment. The resulting identified second node facilitates, among other things, tracking threads within a runtime environment. Furthermore, independent claim 1 recites, *inter alia*, that an operating system associated with the runtime environment is in an unlocked condition. Thus, the identified second node and operating system in an unlocked condition is not an abstract idea but, instead, constitutes a useful, concrete, and tangible result having a practical application. Such practical application includes, for example, facilitating a method that reduces a dependency on kernel system calls for thread-tracking. To that end, the applicants respectfully submit that independent claim 1, and all claims dependent thereon, produce useful, concrete, and tangible results.

Independent claims 11 and 21, and all claims dependent thereon, also constitute statutory subject matter under U.S.C. §101 for at least the reasons as discussed above in connection with claim 1.

Turning to the art rejections, the applicants respectfully submit that independent claim 1 is allowable over the art of record. Independent claim 1 is directed to a method that, *inter alia*, identifies a second node in a data structure allocated by a runtime environment while an operating system associated with the runtime environment is in an unlocked condition. None of the cited references

describes or suggests identifying a second node in a data structure allocated by a runtime environment while an operating system associated with the runtime environment is in an unlocked condition, as recited in claim 1.

The examiner contends that Fang et al. describe an operating system associated with the runtime environment in an unlocked condition (*see page 4 of the official action*). While Fang et al. describe that use of distributed-shared objects may result in heavy overheads in maintaining memory consistency, and that a lightweight distributed-shared object may alleviate such overheads, Fang et al. fail to describe or suggest an operating system associated with the runtime environment. Moreover, Fang et al. fail to describe or suggest that such an operating system is in *any* condition, much less an unlocked condition, as recited in claim 1.

While the examiner appears to suggest that Fang et al. describe an unlocked condition (*see Fang et al., section 3 at page 3*), any such reference to locking and/or unlocking is in view of the Java language, which provides a synchronized block facility. The applicants submit that a careful review of Fang et al. reveals no description or suggestion of an operating system associated with the runtime environment, much less an operating system in an unlocked condition. At best, Fang et al. describe that performance testing employs a Linux operating system (*see Fang et al., section 5, page 5*), but Fang et al. is completely devoid of any discussion related to whether the Linux operating system is in a particular condition, much less an unlocked condition. Accordingly, Fang et al. cannot be fairly interpreted as identifying a second node in a data structure allocated by a runtime environment while an operating system associated with the runtime environment is in an unlocked condition, as recited in claim 1.

The applicants submit that independent claim 1 is allowable over the art of record, and that the rejection of claim 1, and claims 2-10 dependent thereon, must be withdrawn.

Independent claims 11 and 21 are also patentable over the art of record for at least the reasons set forth above in connection with claim 1. Thus, the applicants respectfully submit that these claims and all claims dependent thereon are also in condition for allowance.

Thus, for at least the foregoing reasons, the applicants respectfully submit that all pending claims are now in condition for allowance. If there are any remaining issues in this application, the applicants urge the examiner to contact the undersigned attorney at the number listed below.

The Commissioner is authorized to charge any deficiency in the electronic funds transfer toward payment of any fee due for the filing of this paper to deposit account number 50-2455.

Respectfully submitted,

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July 10, 2007